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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,547	09/03/2004	Susumu Kayama	Q68919	1319

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EXAMINER	
VANOY, TIMOTHY C	
ART UNIT	PAPER NUMBER
1793	
MAIL DATE	DELIVERY MODE
02/27/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/506,547	KAYAMA ET AL.	
	Examiner	Art Unit	
	Timothy C. Vanoy	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13-27 are again rejected under 35 U.S.C. 102(b) as being anticipated by the article titled *Property Control of High Purity Titanium Dioxide by Vapor Phase Oxidation Process* by Tatsuo Go et al.

Figure 1 on pg. 1168 in this Go article illustrates an apparatus (and thus also teaches the method) for producing titanium dioxide (please note the title of this Go article), comprising:

preheating an oxygen-containing gas (that may also comprise steam) to a temperature ranging from 900 to 1,100 ^{o}C in a pre-heater (3);

preheating a titanium tetrachloride gas to a temperature of 900 to 1,100 ^{o}C in a pre-heater (2);

passing the preheated oxygen-containing gas and the preheated titanium tetrachloride gas into a reactor (4) where they react together at a temperature ranging

from 900 to 1,100 °C (please also see pg. 1168, left column, lines 14-17) for a period of time ranging from about 0.1 to 0.4 seconds (please also see pg. 1168, left column, lines 6-7) to produce the titanium dioxide product and a chlorine gas by-product (please see pg. 1168, left column, reaction 1).

Further, note that the powder storage bin (12) is equipped with a de-gassing system (evidently for removing any residual chlorine gas that contaminates the titanium dioxide product).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 13-27 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 10-30 of copending Application No. 11-883,749. Although the conflicting claims are not identical,

they are not patentably distinct from each other because the claims of 10-506,547 and 11-883,749 disclose obvious variations of the same method for producing titanium dioxide by performing a vapor phase process of reacting a titanium tetrachloride-containing gas with an oxidative gas to produce titanium dioxide, wherein the temperature in the reaction tube ranges from 1,050 to less than 1,300 ^{o}C.

The difference between the claims of 10-506,547 and the claims of 11-883,749 is that claim 13 in 10-506,547 sets forth that the residence time of the reagents in the reactor is 0.1 seconds or less (whereas claim 10 in 11-887,749 does not expressly recite this residence time limitation).

Claim 13 in 11-887,749 sets forth that the residence time of the reagents in the reactor ranges from 0.005 to 0.08 seconds.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set forth that claim 10 in 11-883,749 provides a residence time of 0.1 seconds of less for the reagents in the reactor, as set forth in claim 13 in 10-506,547, because claim 13 in 11-883,749 discloses at least an obvious variation of this residence time limitation.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 13-27 are directed to an invention not patentably distinct from claims 10-30 of commonly assigned 11-883,749 (for the reasons set forth in the above obviousness-type double patenting rejection).

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned 11-883,749, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), **either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.**

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Response to Arguments

Applicants' arguments submitted with the Reply filed on Jan. 16, 2008 have been fully considered but they are not persuasive.

a) *The Applicants argue that Go et al. do not disclose the step of maintaining a residence time of the titanium halogenide-containing gas and the oxidative gas in the reactor at a temperature range of at least 800 ^{o}C but less than 1,100 ^{o}C for 0.1 seconds or less. The Applicants submit that the disclosure of a range of 0.1 to 0.4 seconds in*

Go et al. does not anticipate the range of 0.1 seconds or less as recited in the present claims. See Atofina vs. Great Lake Chem. Corp., 441 F.3d 991 (Fed. Cir. 2006), where the Federal Circuit made clear that the endpoints of a disclosed range are not a specific disclosure of the endpoints, and that an endpoint is not a disclosure of a specific embodiment of the claimed range. In the present case, since Go et al. only discloses a range having an endpoint that is the same as the endpoint in the present claims, then Go et al. do not anticipate the present claims.

The discussion of the *Atofina vs. Great Lakes Chem. Corp.* decision set forth in section 2131.03(II) in the MPEP has been studied, but the anticipation rejection is maintained because the MPEP states that "Prior art which teaches a range overlapping or touching the claimed range anticipates if the prior art range discloses the claimed range with "sufficient specificity"". In this case, the express disclosure in Go of a time period as low as 0.1 seconds, is "sufficiently specific" to anticipate the Applicants' claimed time period which may be as high as 0.1 seconds or less.

b) *The Applicants argue that if the residence time exceeds 0.1 seconds, anatase to rutile transformation or sintering of the particles proceed, and the desired effect of the present invention cannot be obtained. Comparative Example 1 in the present application used a residence time of 0.2 seconds (which is within the range of 0.1 to 0.4 seconds disclosed by Go et al.), but did not achieve the desired effect of the present invention.*

The 0.1 to 0.4 second time period taught in the Go et al. reference is not limited to the 0.2 second time period that the Applicants argue produces undesirable results.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The finality of this Office Action is deemed proper even in view of the new obviousness-type double patenting rejection because the Applicants have filed 11-883,749 on Aug. 6, 2007 which after the July 16, 2007 mailing date of the non-final Office Action submitted in 10-506,547.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 571-272-8158. The examiner can normally be reached on Mon-Fri 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 571-272-1358. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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